

1956 WEED CONTROL In Field Crops

Marvin M. Schreiber and Stanford N. Fertig

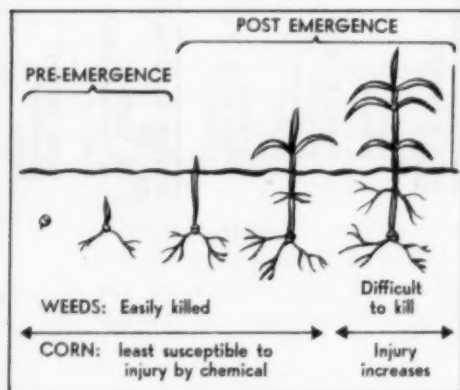
STAGE OF GROWTH

CORN

When is the best time to spray corn to control weeds? There is no one answer to fit all situations but **stage of growth is related to time of application**. Chemicals are applied either at pre-emergence or post-emergence. Pre-emergence is usually interpreted to mean after the corn has been planted but before it has emerged above ground, from 3 to 5 days after planting. Post-emergence is when the corn is from 4 to 10 inches above the ground. Both times are equally effective under normal weather conditions; both, however, have limitations under adverse weather conditions.

Pre-emergence

Pre-emergence treatment is not recommended for corn on very light sandy soils because a heavy rain after application may carry the material down into the soil near the kernel. This may severely reduce the initial stand and result in deformed shoot growth. This sometimes happens even on heavier soils but not to the extent as on lighter sandy soils.



Under normal weather conditions, pre-emergence applications usually control broadleaf weeds with some stunting effect on annual grasses. Probably the greatest advantage is that they control weeds when control is most needed, reducing competition from weeds when weed growth is at its height.

Post-emergence

Post-emergence application can also be effective without serious injury if corn is sprayed before it is too tall — from 4 to 10 inches tall, not more than 10 inches. Under normal weather conditions, corn at a height of 4 to 10 inches is rather resistant to injury. If, however, dry warm weather follows treatments, leaf roll and brace root injury may be severe. This is possible also when a heavy rainfall follows treatment. Under such conditions corn is very susceptible to wind injury or to contact. Cultivation should, therefore, be delayed for at least 10 to 14 days following post-emergence treatment.

A disadvantage of post-emergence treatments is that corn competition has already done its damage and has had a marked effect on yield.

SPRING GRAIN

The stage of growth when oats or spring barley is sprayed depends upon the presence or absence of a seeding.

With No Seeding

When there is no seeding in spring grain, 2,4-D can be used at the rate of $\frac{1}{4}$ to $\frac{1}{2}$ pound per acre depending on the kinds or number of weeds present when the grain is from 4 to 5 inches tall. At this stage the grains are most resistant and the weeds are most susceptible.

With a Seeding

In a seeding that has been made in spring grains, weeds can be controlled in two ways by: (1) the use of an effective chemical that is the least injurious to the seeding, or (2) the application of an effective but potentially injurious chemical at a time when the seedlings have maximum protection in the form of a canopy.

2,4-D or MCP

2,4-D or MCP can be safely used when there is an adequate canopy of weeds and small grains — normally when the grains are from 6 to 15 inches tall and the weeds are about the same height. Extreme care to use the correct pressure and the correct amount of chemical is important. The advantage of the canopy can be completely lost by too much chemical at too high a pressure. In a legume seeding, chemicals such as 2,4-D or MCP applied at early stages of growth injure the seeding; therefore, one must wait until the plants make a protective canopy or use a material less injurious to the legumes such as the dinitros.

Dinitros

Dinitro chemicals, such as Dow-Pre-emerge or Sinox P. E., are selective contact herbicides; that is, they kill only on contact and only on sus-

ceptible species. Oats, barley, and the various legumes are resistant to these materials. Mustard, ragweed, and lambs-quarters are most susceptible.

Because these materials kill by contact only, the weeds must be in the seedling stage.

The dinitro treatment is the safest and most effective method to control weeds in small grains. There may be some tip burn but this is not serious and will disappear in 10 to 14 days without affecting yield.

A FIELD RECORD

A good farmer keeps a field record along with his other farm records. This tells what crop was grown on each field in any given year, rate of seeding, source of seed, manure and fertilizer used, yield, and the day soil samples were sent to determine the need for lime and fertilizer.

To this should be added the weed problems in each field and the control measures used.

Advantages of a Weed Record

With a knowledge of what weeds to expect in each field with a particular crop, the farmer can plan not only his weed-control program to give maximum control with the least injury, but his harvesting procedures. From his records he can survey his progress: have the weeds reduced in total number, in severity, or have they spread? Are new weeds coming in?

To keep such an accurate record requires a faithful survey of the fields, but such a record saves both time and money when trying to eradicate well-established weeds.

How It Works

A farmer may have the following rotation: corn, oats, hay, hay, hay. The fields are lettered A, B, C, D, and E, respectively.

From his field records a farmer knows that **Field A** had a heavy infestation of wild mustard when corn and oats were on it. He knows also that **Field B** does not have much mustard but ragweed is serious. **Field D** had heavy stands of yellow rocket in the first hay years of new seedings, and **Fields C and E** are relatively clean.

This type of information is invaluable to the farmer in planning his weed-control program and in the specific management of his rotation land. For example, whenever he plants **Field A** to corn or oats, he will have to spray. The earlier he can spray, the less damage the weeds will do to his crop yield. His corn would need pre-emergence spray application and probably he would need to use the dinitros on his oats if they are seeded, or 2,4-D if not seeded.

From the information on **Field B** he would probably plan a post-emergence treatment for corn because he knows ragweed is a little later than mustard. He would spray the oats with 2,4-D or MCP when the plants are from 6 to 15 inches tall and the seeding well protected with a canopy.

He would plan to cut **Field D** for grass silage, taking the first cutting in the first and second hay years because hay from yellow-rocket-infested-fields is best used in the silo.

This farmer would take special precautions to keep manure off

Fields C and E to prevent the introduction of serious weed problems on these relatively weed-free fields.

To carry on a well-planned weed-control program, one must have a complete picture of the weed problem. A field record is the best way to get this picture.

COMMUNITY EFFORT

Many of the worst weeds in New York are wind-borne; that is, they contain tufts of hair that allow them to be carried long distances by the wind. Dandelions, milkweed, Canada thistle, sow thistle, and bull thistle are but a few examples. Chemicals along with some sort of cultural method, such as mowing, would do much to halt the spread of these troublesome weeds. Their control is not effective when one farmer or even several farmers practice good weed control and most of their neighbors do not.

The recent spread of these particular weeds is due primarily to a lack of community interest and action. Most communities are unaware that their control is beyond the individual farm. Some sort of community or county effort is needed, since there is no law to compel such a movement. Some voluntary action on the part of responsible groups must be attempted. Such a voluntary group must gain the support of **ALL** members of the community. They should stress not only weed control in the fields but in the fencerows and especially along the roadsides.

Each farmer should get some program started in his community—talk it over with his county agricultural agent.

1956 Chemical Weed Control Recommendations

CROP	CHEMICALS	RATE PER ACRE*	REMARKS
CORN Pre-emergence For trial use at planting	Dow Premerge or Sincox PE	2 gallons per acre in 30 gallons of water	Mount spray nozzles on planter. Treat 12-inch band directly over row. Six pounds (2 gallons of chemical) should treat 3 acres. Reduces competition in row for 4 to 6 weeks. In some cases, has resulted in suppression of perennial grasses, as well as annual grasses.
Pre-emergence 3 to 5 days after planting	2,4-D low volatile ester	1½ pounds in 5 to 15 gallons of water	Use pre-emergence only on heavy soils. Injury often occurs on light soils if rain follows treatment. Low-volatile esters safer and more effective than amines. Pre-emergence desirable where moisture conditions may prevent early cultivation. May be ineffective if dry weather follows treatment.
Post-emergence corn 4 to 10 inches tall	2,4-D amine or 2,4-D low volatile ester	½ pound ----- ¼ pound	Corn at 4 inch stage is most resistant to injury and the broadleaved weeds are most susceptible. Some leaf rolling may occur. Normally not serious with recovery rapid. More noticeable where hot, dry weather follows treatment. Do not cultivate for 10 to 14 days following treatment.
Post-emergence corn 10 to 24 inches tall	2,4-D amine	¾ to 1 pound in 5 to 15 gallons of water	For emergency cases where earlier weed-control measures are not performed or unsuccessful and where a specific weed infestation is serious. Use drop pipes and keep spray of corn leaves.
OATS or SPRING BARLEY Seeded: Grain 2 to 6 inches tall ----- Grain 6 to 15 inches tall Good canopy essential ----- Not seeded: Grain 4 to 5 inches tall	Dow Premerge† or Sincox P.E. ----- 2,4-D amine or MCP amine ----- 2,4-D amine	1 to 1½ quarts in 30 gallons of water ----- ¼ pound in 5 to 7 gallons of water ----- ¼ to ½ pound in 5 to 15 gallons of water	Treatment must be applied when weeds are seedlings. Slight to severe burning of oats may occur, depending on temperature. Recovery rapid. Height of oats not so important as size of weeds. The weeds must be seedlings. ----- Canopy of weeds and oat plants to protect legume is essential. Correct amount of chemical extremely important. Be sure to calibrate equipment. Alfalfa and birdsfoot trefoil most susceptible. Red clover most resistant. Keep pressure down (from 30 to 40 pounds). ----- If most of weeds fall in <i>early-to-control</i> group, use ¼ pound. Where hard-to-kill weeds are present or spraying is on late side, use ½ pound. 2,4-D amine is most economical chemical available. Oats most susceptible of cereal grains; barley most resistant.
WINTER WHEAT or BARLEY Fall treatment to be spring seeded to legume ----- Spring treatment not seeded to legume ----- Spring treatment after legume seed- ing Canopy essential	2,4-D amine ----- 2,4-D amine ----- 2,4-D amine or MCP amine ----- MCP	0.3 pound in 5 to 15 gallons of water ----- ¼ to ½ pound in 5 to 15 gallons of water (amount depends on kind of weeds) ----- ¼ pound in 5 to 7 gallons of water ----- ¼ pound in 5 to 7 gallons of water	Fall treatment has resulted in injury to crop. Crop should be at least 4 to 6 inches tall. Suggested only where yellow rocket or vetch is serious problem and legume seedling to be made in early spring. ----- Apply just before jointing. Avoid treatment in "joint" or "boot" stage. Has given least injury at full tiller stage (5 to 8 inches). ----- Canopy of crop and weeds important. Apply just before jointing or at full tiller stage to get best possible canopy. Keep pressure down to 30 to 40 pounds. Alfalfa and birdsfoot trefoil most susceptible legumes. Be careful! ----- Fall treatment (September 15 to October 15) gives satisfactory control of late-summer and early-fall-germinated yellow rocket without significant reduction of clovers. Some reduction of alfalfa will also occur.
NEW or ESTAB- LISHED LEGUME SEEDINGS Predominately red clover	No chemicals have yet proved satis- factory for weed control in these two legumes		Grass silage is still the most effective method of handling the first cutting of fields infested with yellow rocket, white cockle, and other weeds.
PERMANENT PASTURES	Good manage- ment ----- 2,4-D low volatile ester or amine ----- TCA ----- Dalapon	Mowing machine, lime, fertiliser ----- ½ to 1½ pounds in 10 to 30 gallons of water ----- 25 pounds. For con- trol of broadleaved weeds, 2,4-D may be added ----- 10 pounds. For con- trol of broadleaved weeds, 2,4-D may be added	Chemical treatment is not a substitute for good management. Runout pastures should be plowed, limed, fertilised, and reseeded. Mowing of pastures after each grazing period or at least twice per season reduces the weed problem. ----- The amount of 2,4-D required depends on the weed species present. More than one treatment is normally required to control perennial pasture weeds. ----- This is not a general recommendation for New York. Some interest has been shown, and in experiments at other stations the method has shown promise. As much as 25 pounds of TCA or 10 pounds of Dalapon kills existing sod. The method is not a replacement for plowing where plowing is possible. Treatments should be made on closely grazed or mowed areas. Thorough disking from 4 to 6 weeks after treatment recommended. Use of treatment on low-value land questionable because of cost.

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Experimental results have shown Dalapon at 10 pounds per acre as a fall application to be effective for the control of bedstraw in bird-foot trefoil. However, due to the lack of residue data of Dalapon on bird-foot trefoil, this material cannot be recommended for trial use at this time.

The best control of Horse Nettle has been obtained with 2,4-D + 2,4,5-T. One treatment will not give 100 per cent control. Make first treatment when Horse Nettle is in bloom. New plants will come up from root stocks and seed. Several seasons are required for control.

No selective chemical has been found for milkweed. Cutting or hand pulling at any time prior to pod formation is desirable.

Late summer treatment recommended. Plow shallow, harrow and treat. For large areas, however, fallow is most effective and economical practice. Some new chemicals show promise as spring treatments before plowing.

MCP more effective for thistle control than 2,4-D. An application of 1½ pounds during pre-bloom stage has been most effective. Use enough water to wet the entire plant. A combination of mowing and chemical treatment speeds up control. Spot treatment recommended where clovers are present.

Treatment of chicory in the fall or spring while the plants are in the vegetative stage gives good control. Community or county control programs recommended.

The control of wild onion is difficult. One treatment will not do the job. Treatment of wild onion in pastures in the spring and fall over a 3-year period will get results. Spot treatment can be used for scattered plants. In wheat, ½ pound of 2,4-D applied in the spring reduces the number of aerial bulbils formed.

Chemical treatment may stunt sudan grass. Allow at least 1 foot of growth after treatment before grazing. Danger of prussic-acid poisoning.

Effective treatment for brush from 4 to 6 feet tall. Taller brush should be cut and regrowth sprayed. Leaves and stems of all plants must be thoroughly wet. Use 2,4,5-T in oil as follow-up basal spray to get the difficult-to-kill species not controlled by foliage treatment. Keep livestock off areas where choke cherry or wild cherry have been sprayed. *Be cautious of drift to susceptible crops.*

One application of ammate as effective as 2,4-D + 2,4,5-T. Ammate is a contact herbicide and kills or injures all above-ground parts which it contacts. The use of a spread-sticker normally gives better coverage and, therefore, better control.

For best results, a uniform cover on the trunk or stem of plant from ground line to height of 18 inches is recommended. Basal spray gives as good or better control than foliage. Can be applied throughout season. *Avoid treatment just before plants leaf out in spring. Kill has not been consistent.*

Good kill is the result of good coverage. An excess of spray to run down onto roots essential.

Results best when applied immediately after cutting. Root crown, exposed roots, sides, and cut surface of stumps must be covered. An excess of spray to run down on the roots essential.

* Be sure to calibrate equipment. Use correct nozzle tips and pressures. Severe injury to crops can result from "guess work" applications. Too high pressure increases danger from drift.

† The dinitros (Dow Preemerge and Sinox P.E.) are affected by weather. Do not use during hot, humid weather. Dinitros stain the skin. The higher the temperature the greater the burn on the crop.



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PERENNIAL WEED CONTROL	Dalapon		
Bedstraw			10 pounds. For control of broadleaved weeds, 2,4-D may be added
Horse Nettle	2,4-D + 2,4,5-T		2 pounds. Good coverage important
Milkweed	TCA		80 to 100 pounds per acre
Quackgrass			
Thistles	MCP amine or 2,4-D ester		1½ pounds in 10 to 15 gallons of water
Chicory	2,4-D		½ to 1 pound in 10 to 15 gallons per acre
Wild onion	2,4-D ester		1½ pounds in 10 to 15 gallons of water
SUDAN GRASS	See recommendations for oats and spring barley		
WOODY PLANTS As summer foliage spray (roadsides, fence-rows, pastures, waste places, and the like)	2,4-D + 2,4,5-T followed by 2,4,5-T if necessary		4 to 6 pounds in 150 gallons of water
	Ammate		75 pounds in 100 gallons or ¾ pound per gallon of water
As basal spray	2,4-D + 2,4,5-T or 2,4,5-T		6 pounds in 40 gallons No. 2 diesel fuel 4 pounds in 40 gallons No. 2 diesel fuel
Stump treatment	2,4-D + 2,4,5-T or 2,4,5-T		8 pounds in 40 gallons No. 2 diesel fuel 6 pounds in 40 gallons No. 2 diesel fuel